

ABSTRACT

A bias circuit is provided for improving linearity of a radio frequency power amplifier. The bias circuit includes a bias transistor having a collector, an emitter, and a base. The collector is connected to a DC voltage source, the emitter is connected to a radio frequency transistor, and the base is connected to a bias voltage source. A capacitor and an inductor are connected in series and are coupled either between the emitter of the bias transistor and ground or between the base of the bias transistor and ground, thereby constructing an LC series-connected resonator circuit. The LC series-connected resonator circuit directly conducts the part of the radio frequency input signal, which is coupled back to the bias transistor, into the ground, thereby improving linearity of the radio frequency power amplifier. Preferably, the LC series-connected resonator circuit is designed to have a resonant frequency, which is equal to a frequency of a second harmonic component of the radio frequency input signal.